



MISSOURI CONSERVATIONIST

VOLUME 83, ISSUE 10, OCTOBER 2022

SERVING NATURE & YOU

Discover what's ON SALE NOW



2023 NATURAL EVENTS CALENDAR

Keep in touch with the year's seasonal changes. Each month offers a reminder of the state's natural treasures, and daily notes keep you posted on what's blooming or nesting. **01-0366 — \$9**



New! OWL & NUTHATCHES NOTECARD SETS

MDC's new notecard sets are great for gift giving. Each set includes 12 cards, 4½ by 6 inches, and envelopes.

Barred owl perched on a paint-chipped fence post.
01-0321 — \$8.00

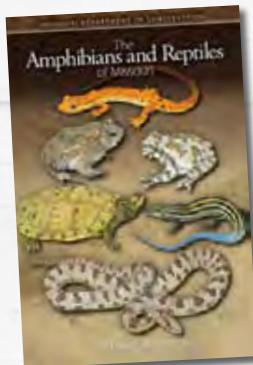


Brown-headed nuthatch recently reintroduced back to Missouri's Ozark woodlands.
01-0320 — \$8.00

New!

STRANGE BUT TRUE

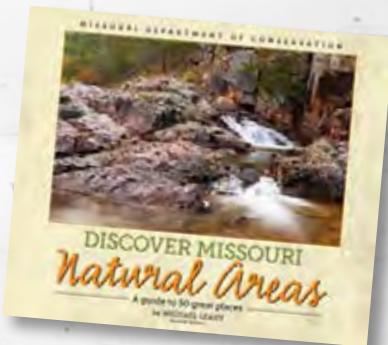
The creatures that inhabit Missouri are remarkable, diverse, and ... strange. It's a weird, wild world out there and now you can learn all about 350 fun facts in this new book adapted from the pages of the award-winning children's magazine *Xplor*. **01-0300 — \$8.95**



New! THE AMPHIBIANS AND REPTILES OF MISSOURI

THIRD EDITION

Recently updated, this 514-page guide to Missouri's amphibians and reptiles provides descriptions, distribution, habitats, habits, breeding, and other information on nearly 120 native species. Illustrated with more four-color photos and pen and ink drawings than before, this soft-cover guide includes updated taxonomy, common names, and distribution maps, expanded *Guide to Missouri's Tadpoles*, and a new section for established, nonnative species. **01-0299 — \$29**



New! DISCOVER MISSOURI NATURAL AREAS 2ND EDITION

This second edition features seven more recent additions to the Missouri Natural Areas System, and it also features updated maps and text for the recently expanded Coakley Hollow Fen. The list of helpful references as well as the list of scientific names have also been reviewed and updated. **01-0295 — \$19.95**

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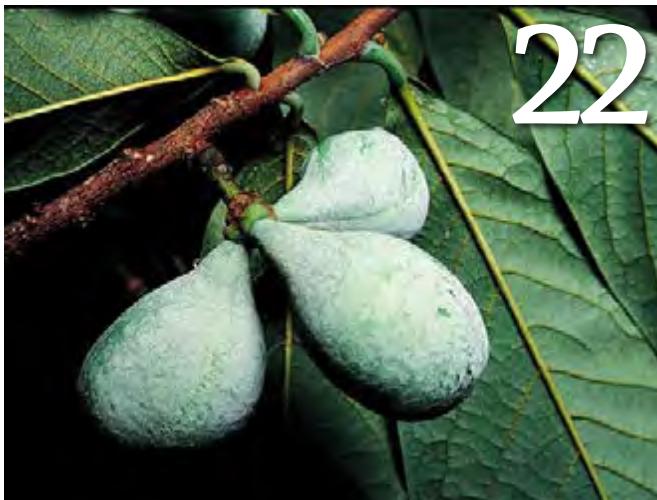
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Black bear

MISSOURI
CONSERVATIONIST



ON THE COVER

Fall color at Indian Trail Conservation Area

© DAVID STONNER

100–400mm lens, f/5
1/640 sec, ISO 400

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Inbox



Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email Magazine@mdc.mo.gov or write to us:

MISSOURI
CONSERVATIONIST
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BEETLES

Thanks for enlightening us on a little known subject (*American Burying Beetle*, August, Page 16). I was fascinated to learn about these beetles, and what is being done to protect them and increase their population.

Barry Jones
Harrisonville



GOING BATTY

I made and installed this bat house on the back of our chimney three years ago. We had two to three brown bats using the box all summer last year. This year has been an exciting experience as our bat house has become the nursery for females giving birth to their pups. We have counted up to four to five pups in this little bat house. On excessive heat warning days, they move down the board, and we have noticed them fly into nearby trees during the day. It's been fun watching them grow, even though we know they will probably be leaving soon.

Paul Moreno Liberty

BUTTONBUSH

I read with interest your back cover on buttonbush in the August issue. I planted several in my upland backyard in 1990. I watered them deeply for several years. They grew to 8 or 9 feet and bloomed beautifully. After all these years, they are still struggling to survive. They are shaded now so no longer bloom, but I do see sphinx moth caterpillars on them from time to time.

I encourage more people to plant buttonbush to attract beautiful butterflies, moths, and hummingbirds to their backyards.

Thomas Crawford via email

MEET THE BEETLES

The *American Burying Beetle* article in the August issue was fascinating. I was amazed as I read one detail after another about this mighty insect. Good to hear the breeding and reintroduction efforts are going well in Missouri. Thanks for such an interesting article.

Sheila Brown Gerald

The story on the American burying beetle captivated me, and I am sure others, with the opening tale of a beetle couple out for a nice dinner. I couldn't stop reading the article. At its conclusion, I laughed to myself and thought, how could I have just been so intrigued by a couple of beetles!

Truth be told, your magazine is first class and always delights me and offers insight into our wonderful natural world.

Richard Zott Ballwin

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Send a note using our online contact form at mdc.mo.gov/commissioners.

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The Missouri Department of Conservation protects and manages the fish, forest, and wildlife of the state. We facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources.

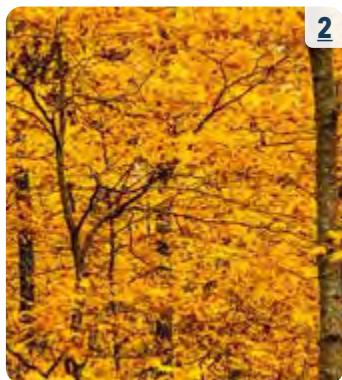


**Want to see your photos
in the Missouri Conservationist?**

Share your photos on Flickr at flickr.com/groups/mdcreaderphotos-2022 or email Readerphoto@mdc.mo.gov.

**1**

1 | Dogwood tree at Valley View Glades Natural Area by [Kathy Bildner](#), via Flickr

**2**

2 | Sugar maples by [Perry Eck](#), via Flickr

3 | Rough greensnake by [Cadence King](#), via email

**3**

**Want another chance to see
your photos in the magazine?**

→ In the December issue, we plan to feature even more great reader photos. Use the submission methods above to send us your best year-round pictures of native Missouri wildlife, flora, natural scenery, and friends and family engaged in outdoor activities. Please include where the photo was taken and what it depicts.

TAYLOR LYNN PHOTOGRAPHY



Up Front

with Sara Parker Pauley

✖ A majestic, century-old silver maple that shaded our home from the summer sun and sheltered many a critter throughout its life, finally had to come down recently. I said my farewell and offered up gratitude for the tree's life and for the previous homeowner who chose to plant it so many years ago.

The last few weeks I've had great joy in visiting MDC staff across the state and seeing firsthand the work they are doing today to benefit others and the future. From their tireless efforts to restore prairie, which is home to declining grassland birds, to countless efforts in our reservoirs and streams ensuring bountiful fish for our anglers, to work in woodlands creating the right habitat to support turkey and deer, the task is never-ending, never easy, and never happens overnight.

In Lincoln County, staff introduced me to a landowner we've worked with over many years in his efforts to restore hundreds of acres to open woodlands now carpeted in native wildflowers. As we toured his beautiful oasis, his journey's message was clear — it takes patience, perseverance, and time.

In the end, I left the old maple trunk standing. Though it no longer provides shade to our home, it still shelters birds, squirrels, and other critters that make their way by. I'll plant another tree there someday in hopes that a future homeowner will benefit from its lofty beauty and protection. It will need good soil, sun, water, and, yes, time. That's nature's way.

SARA PARKER PAULEY, DIRECTOR
SARA.PAULEY@MDC.MO.GOV

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Nature LAB

by Dianne Van Dien

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

SPECIES OF CONSERVATION CONCERN

Monitoring Cave Bats

Every winter MDC Bat Ecologist Jordan Meyer and other trained staff enter caves across Missouri to count hibernating bats. While some bat species migrate, species that hibernate provide a perfect opportunity for biologists to monitor their population numbers.

During the counts, the bats' welfare is a top priority. "We want to keep disturbance to a minimum, so we don't make the bats use up their energy reserves any faster than they need to," explains Meyer. "Bats come in and out of hibernation naturally, but every extra rousing burns more fat that they're counting on to make it through the winter."

Researchers visit each cave only once every other year and try to complete counts in less than three hours. Equipment and clothing are disinfected before and after entering a cave to prevent the spread of white-nose syndrome (WNS), a deadly disease caused by a fungus that grows on the exposed skin of bats.

"If bat numbers are small, we can do a hand count," says Meyer. "But when bats are tightly clustered, we photograph the bats with a high megapixel camera and then come back to the office to blow up the image



MDC researchers Jordan Meyer (left) and Kyle Janksy (right) count and photograph hibernating bats during a winter survey. The pile of guano (bat droppings) indicates bats are roosting above. Most bats return to the same cave year after year, so counting them during hibernation provides an accurate way to monitor changes in bat populations over time.

Scientists count bats during hibernation to learn how populations are faring

and do the counting on a computer. This not only increases accuracy but reduces disturbance to the bats because we can get in and out more quickly."

MDC began routinely monitoring bats in 1975. These efforts have increased in recent decades as bat populations have declined from the spread of WNS, habitat loss, and climate change. Data is shared with the U.S. Fish and Wildlife Service and used for regional management decisions.

Want to help bats? MDC Resource Science Supervisor Tony Elliott says, "The easiest thing you can do is to avoid disturbing them in caves."



Indiana bats

Monitoring Cave Bats at a Glance

MDC and partners monitor more than 500 hibernacula (caves and other subterranean places where bats hibernate) across the state.

Partners

U.S. Fish and Wildlife Service, Cave Research Foundation, Missouri Department of Natural Resources (DNR), DNR's Missouri State Parks, Mark Twain National Forest, and others.

Main species that hibernate in Missouri's caves:

- Indiana bat ● ●
- Gray bat ● ●
- Northern long-eared bat ● ●
- Tri-colored bat ●
- Little brown bat ●
- Big brown bat

- Federally endangered
- Federally threatened
- Missouri endangered
- Missouri species of conservation concern

Caves provide bats with safety as well as stable temperatures that allow bats to use minimal energy to maintain body heat while hibernating.

In Brief

News and updates from MDC



Missouri River bluffs
near Hartsburg Access

DISCOVER FALL COLOR

MDC OFFERS
FALL COLOR
REPORTS, BEST
PLACES TO VIEW
CHANGING LEAVES

➔ The peak of fall color in Missouri is usually around mid-October. This is when maples, ashes, oaks, and hickories are at the height of their fall display. Normally by late October, the colors fade and the leaves begin to drop from the trees. Fall color is usually finished by the middle of November.

The progression of color change usually starts earliest in northern and western Missouri and moves southward and eastward across the state. Generally, the color change is predictable, but it can vary from year to year. Much depends on the weather.

Find some of the best places to view fall color, related events, and a weekly update on how colors are looking throughout the state at short.mdc.mo.gov/ZVf.

Ask MDC

Got a Question for Ask MDC?

Send it to AskMDC@mdc.mo.gov
or call 573-522-4115, ext. 3848.

Q. What type of sunfish is this?

→ This is a longear sunfish (*Lepomis megalotis*), by far the most abundant and generally distributed sunfish over the southern half of Missouri.

These fish are found in Ozark streams of all sizes, except extreme headwaters. They prefer overflow pools and inlets near stream channels, as well as ponds and reservoirs. They like clear, permanent-flowing waterways with sandy or rocky bottoms and aquatic vegetation.

Although not considered a game fish, this species provides good sport when taken on light tackle. Worms, grasshoppers, and small minnows are good natural bait, but artificial small spinners, popping bugs, and flies also are effective. For more information, visit short.mdc.mo.gov/4qr.



Longear sunfish



Purple coneflower

Q. Now that the blooms on my native flowers are beginning to fade, is there anything I can do to support bees, aside from planting more native flowers next spring?

→ Whether in the city or a rural area, bumblebee species in greatest decline are being found where floral resources are diverse, according to observations recorded in the Missouri Bumble Bee Atlas. We also know from the Atlas that bumblebees prefer native wildflowers for nectar and pollen. For that reason, conservationists ask people to avoid nonnative species for native species. Planting flowers — whether a small window box or a 40-acre field — is the best thing you can do.

A good resource for procuring native plants is grownative.org or a native plant sale near you.

To assist pollinators, the standard recommendation is 20 species of flowering plants with at least three blooming at any one time during the growing season. If not enough blooming plants are on the landscape when the queen bees emerge in May and June, the chances of them making a successful nest are slim. The same thing can happen in late August and September when new queens are bulking up for the winter.

Flowers like blue indigo, bee balm, purple coneflowers, milkweed, field thistle, blazing stars, oxeye sunflower, Maximilian sunflower, pitcher sage, and goldenrod are known to attract and sustain bumblebees. In many landscapes, a diversity of floral resources allows bumblebees to tailor their foraging to match their current needs. (Some studies have even shown bumblebees will self-medicate with certain plants if a colony is facing a disease issue.)



Stinging rose caterpillar

Avoiding insecticides is another easy step to take. Exposure to small doses of pesticides over the course of their life may not be lethal, but it does affect bees' ability to navigate and provide food for the colony.

Finally, creating a nesting substrate can help. In the wild, bumblebees often use old mouse burrows. This can be replicated with an overturned flowerpot. A few cotton balls or a wad of fabric sometimes seems to help them get nests established.

Q. What caterpillar is this?

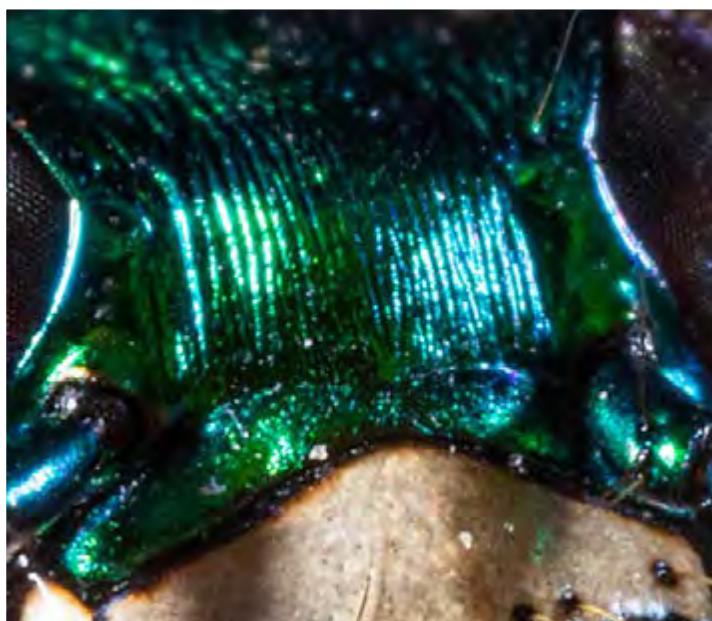
→ This is a stinging rose caterpillar (*Parasa indetermina*). Many caterpillar hunters prize this species for their beautiful yellow, orange, or red colors. Common foodplants include apple, dogwood, hickory, maples, oaks, poplars, and rose bushes.

As a defense mechanism, these caterpillars possess hollow quill-like hairs, which when touched, can release a venom, which can lead to mild itching or more severe pain.

What IS it?

Can you guess this month's natural wonder?

The answer is on Page 8.



Corporal Rob Sulkowski

STE. GENEVIEVE COUNTY

CONSERVATION AGENT

offers this month's

AGENT ADVICE

Fall turkey season is here, and whether your preferred method is archery or firearm, it's a great time to be in the woods. Turkeys are usually vocal birds — famous for their gobbling calls — but they are quieter in the fall. You must work to find them. Get out and scout where you have permission to hunt. Once you've located birds, learn their patterns, and identify a location from which to hunt. Pack hunter orange for your walk into and out of the woods. For more information, including how to purchase your fall firearms or archery turkey permits, consult the 2022 *Fall Deer and Turkey Hunting Regulations and Information* booklet at short.mdc.mo.gov/4Tz.

INVASIVE SPECIES

MISSOURI'S LEAST WANTED

Invasive nonnative species destroy habitat and compete with native plants and animals. Please do what you can to control invasive species when you landscape, farm, hunt, fish, camp, or explore nature.

Autumn Olive

Introduced in North America in the 1830s, autumn olive (*Elaeagnus umbellata*) is a nitrogen-fixing shrub or small tree native to East Asia. It grows rapidly, reaching 20 feet. Each plant produces several pounds of small, reddish pink fruit that is readily consumed by birds and small mammals.

Why It's Bad

Autumn olive grows rapidly, thrives in poor soil, and its fruit is widely dispersed by birds. Its large size creates dense shade, prohibiting native plants from growing, while its nitrogen-fixing capabilities adversely affect the soils that native plants need to survive.

How to Control It

Early spring: Seedlings and sprouts can be hand pulled to allow removal of the entire root system along with above-ground growth.

Summer, fall, and winter: Cut the plant at ground level and apply herbicide to the entire cambium layer of the cut stump.

In fall: This shrub loses its leaves much later than other species, making it easy to notice.

Alternative Native Plants

Replace autumn olive with these native species:

✓ Hawthorns	✓ Ninebark	✓ Serviceberry
✓ Plums	✓ Hazelnut	✓ Dogwoods



The undersides of leaves are silvery, giving autumn olive an overall sage-colored appearance.



To learn more, visit short.mdc.mo.gov/4Th

WHAT IS IT?

SIX-SPOTTED TIGER BEETLE

The six-spotted tiger beetle is probably the most familiar tiger beetle in Missouri. You can identify it not only by its shiny green color but also by its fast-running and fast-flying behavior. Its larvae are pale and grublike, with six legs and strong pincers. They dig holes into the ground and rest near the entrance. Adults emerge in fall, hibernate in winter, mate, and lay eggs in spring.



CWD

Info to Know for the 2022–2023 Deer Season



Chronic wasting disease (CWD) is a deadly, infectious disease in deer and other members of the deer family (cervids) that eventually kills all animals it infects.

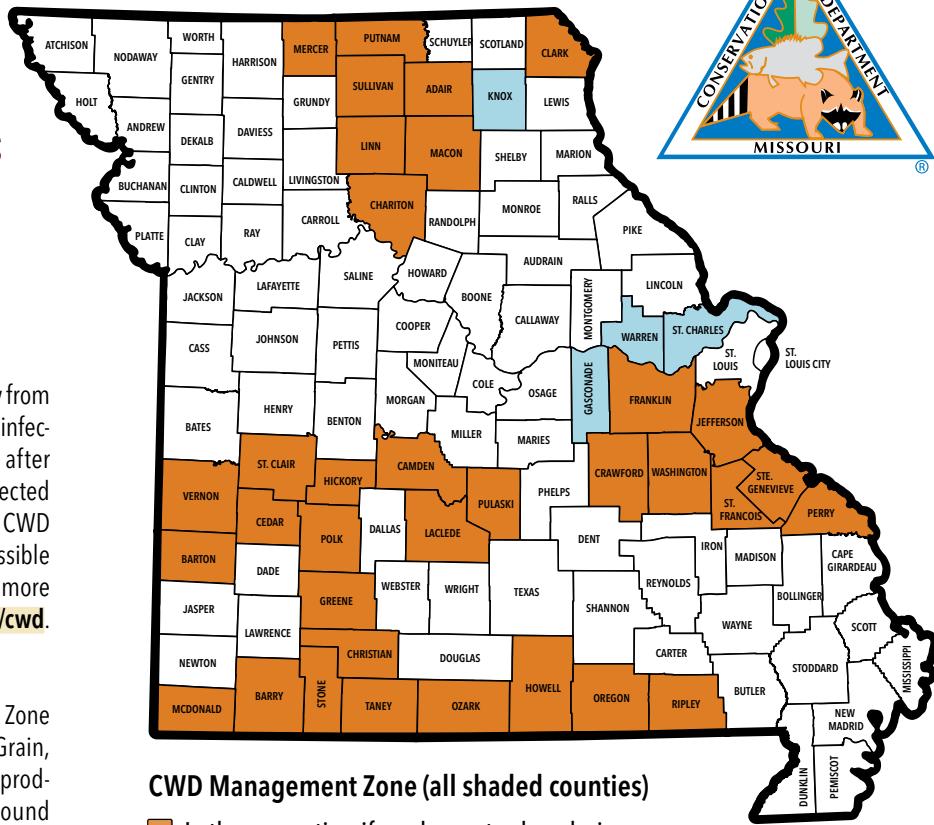
There is no vaccine or cure. CWD is spread directly from deer to deer and indirectly when deer encounter infectious prion proteins (which cause the disease) after they have entered the environment from an infected deer. MDC continues efforts to limit the spread of CWD in Missouri by finding new cases as early as possible and managing the disease to slow its spread to more deer in more areas. Learn more at mdc.mo.gov/cwd.

CWD Management Zone

Four counties are new to the CWD Management Zone this year: Barton, Greene, Ripley, and Vernon. Grain, salt products, minerals, and other consumable products used to attract deer are prohibited year-round within the CWD Management Zone. For exceptions, see the *2022 Fall Deer & Turkey Hunting Regulations and Information* booklet at short.mdc.mo.gov/ZXv.

Mandatory CWD Sampling Nov. 12 and 13

Hunters who harvest a deer in CWD Management Zone counties (except Gasconade, Knox, St. Charles, and Warren; see map above) during Nov. 12–13 must take their harvested deer, or the head, on the day of harvest to one of MDC's CWD mandatory sampling stations located in the zone. Hunters must follow carcass movement restrictions (see *Carcass Movement Restrictions*). Sampling and test results are free (see *CWD Test Results*). Hunters who harvest deer in counties outside of the zone, or in Gasconade, Knox, St. Charles, or Warren counties, are not required to participate in sampling but are encouraged to use MDC's voluntary sampling opportunities. Find sampling locations online at mdc.mo.gov/cwd or from MDC's *2022 Fall Deer & Turkey Hunting Regulations and Information* booklet.



CWD Management Zone (all shaded counties)

■ In these counties, if you harvest a deer during Nov. 12–13, 2022, you must take it, or the head, on the day of harvest to a mandatory CWD sampling station.

□ CWD sampling is not mandatory in these counties.

Before Arriving at a Mandatory Sampling Station:

- Field dress and Telecheck deer.
- Bring the carcass or just the head.
- Capes may be removed in preparation for taxidermy.
- Position deer in vehicles with head and neck easily accessible.
- Be sure the person who harvested the deer is present.
- Have the hunter's conservation number, and be prepared to find the location of harvest on a map.
- If using a paper permit, have it detached from the deer for easy access.
- If using the MO Hunting app, have permit and Telecheck information available.

Voluntary CWD Sampling All Season Statewide

MDC will again offer statewide voluntary CWD sampling and testing of harvested deer during the entire deer season at select locations throughout the state. Find locations and more information online at mdc.mo.gov/cwd or by contacting an MDC regional office.

CWD Test Results

Test results for CWD-sampled deer are free and will be available within four weeks after the sampling date. Get test results online at mdc.mo.gov/CWDTestResults.

Carcass Movement Restrictions

These regulations, included in the *Wildlife Code of Missouri*, are part of MDC's ongoing efforts to slow the spread of CWD.

For hunters who harvest deer in Missouri from a CWD Management Zone county:

- Deer must be Telechecked before any parts of the carcass may be transported out of the county of harvest.
- Whole carcasses and heads may only be transported out of the county of harvest if delivered to a licensed meat processor, licensed taxidermist, or to an approved CWD sampling station within 48 hours of exiting the county of harvest.

Note: Nov. 12-13, deer harvested in CWD Management Zone counties (except Gasconade, Knox, St. Charles, and Warren) must be taken on the day of harvest to a CWD mandatory sampling station.

- The following carcass parts may be moved outside of the county of harvest without restriction:
 - ▶ Meat that is cut and wrapped or that has been boned out
 - ▶ Quarters or other portions of meat with no part of the spinal column or head attached

- ▶ Hides from which all excess tissue has been removed
- ▶ Antlers or antlers attached to skull plates or skulls cleaned of all muscle and brain tissue
- ▶ Finished taxidermy products

For hunters bringing deer and other cervids into Missouri from another state:

- Hunters may not transport whole cervid (deer, elk, moose, caribou) carcasses into the state.
- Heads from cervids with the cape attached and no more than 6 inches of neck attached may be brought into Missouri only if they are delivered to a licensed taxidermist within 48 hours of entering Missouri.
- There is no longer a requirement that cervid carcass parts coming into the state be reported to the MDC carcass transport hotline.
- The following cervid parts can be transported into Missouri without restriction:
 - ▶ Meat that is cut and wrapped or that has been boned out
 - ▶ Quarters or other portions of meat with no part of the spinal column or head attached
 - ▶ Hides from which all excess tissue has been removed
 - ▶ Antlers or antlers attached to skull plates or skulls cleaned of all muscle and brain tissue
 - ▶ Upper canine teeth
 - ▶ Finished taxidermy products

For taxidermists and meat processors:

- Taxidermists and meat processors throughout the state are required to dispose of deer, elk, and other cervid parts not returned to customers in a permitted sanitary landfill or transfer station. This requirement does not apply to hides from which all excess tissue has been removed.
- Proof of disposal must be retained for 12 months for meat processors and for three years for taxidermists.

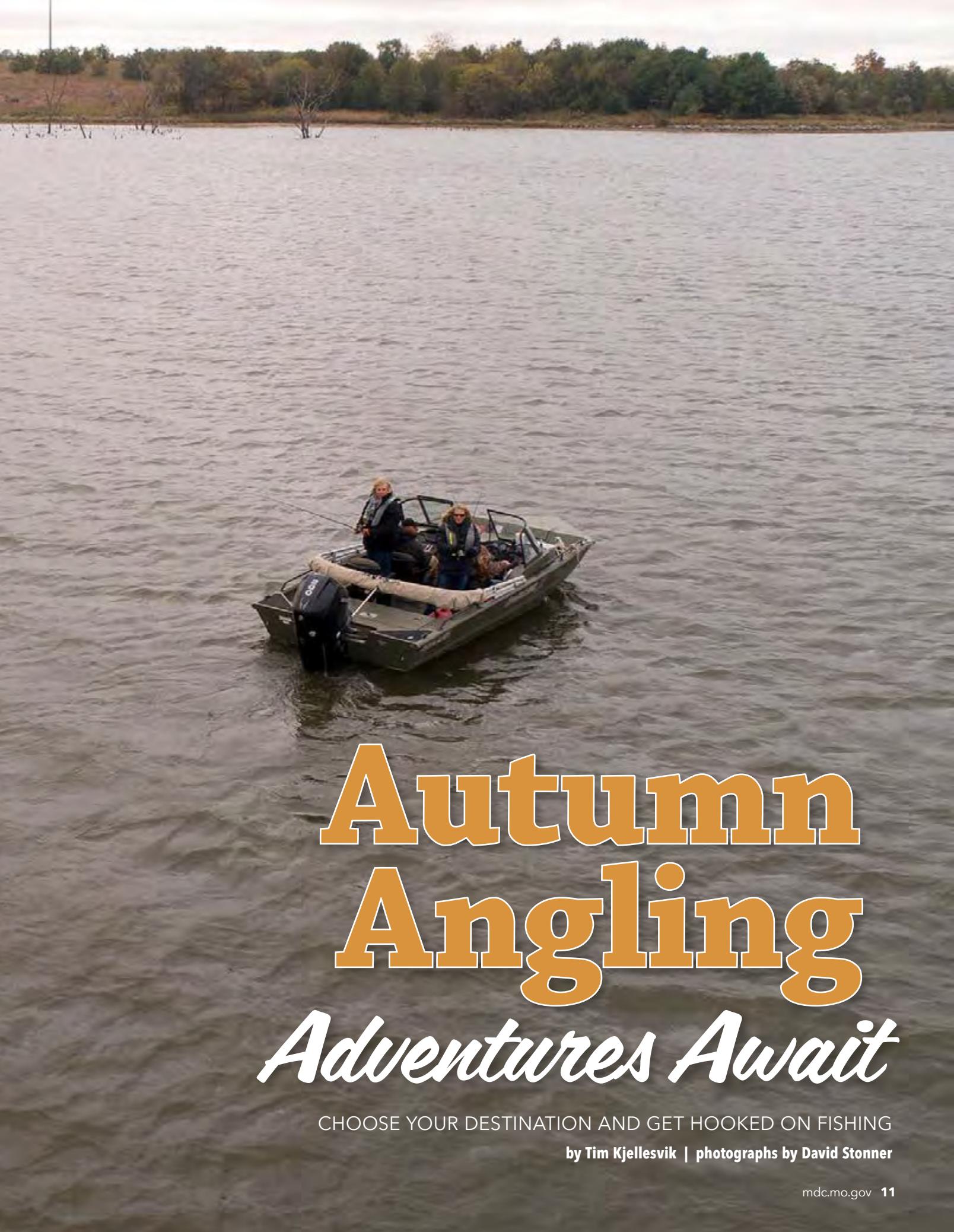
Share the Harvest

Missouri's Share the Harvest program helps deer hunters donate venison to those in need. To participate, take harvested deer to an approved meat processor and let the processor know how much venison is to be donated. Deer harvested within the CWD Management Zone may only be donated to approved processors in the Share the Harvest CWD Testing Program. Deer harvested outside of the CWD Management Zone may be donated to any Share the Harvest processor. Learn more online at mdc.mo.gov/share or from MDC's 2022 Fall Deer & Turkey Hunting Regulations and Information booklet.

More Information

Get more information on CWD regulations and other CWD information online at mdc.mo.gov/cwd or from MDC's 2022 Fall Deer & Turkey Hunting Regulations and Information booklet, available where permits are sold and online at short.mdc.mo.gov/ZXv.



A small, dark-colored aluminum boat with two people on board is shown from an elevated angle, moving across a large body of water. The boat has a single outboard motor at the stern. The people are wearing life jackets and appear to be fishing. In the background, a dense line of trees marks the shore under a clear sky.

Autumn Angling *Adventures Await*

CHOOSE YOUR DESTINATION AND GET HOOKED ON FISHING

by Tim Kjellesvik | photographs by David Stonner

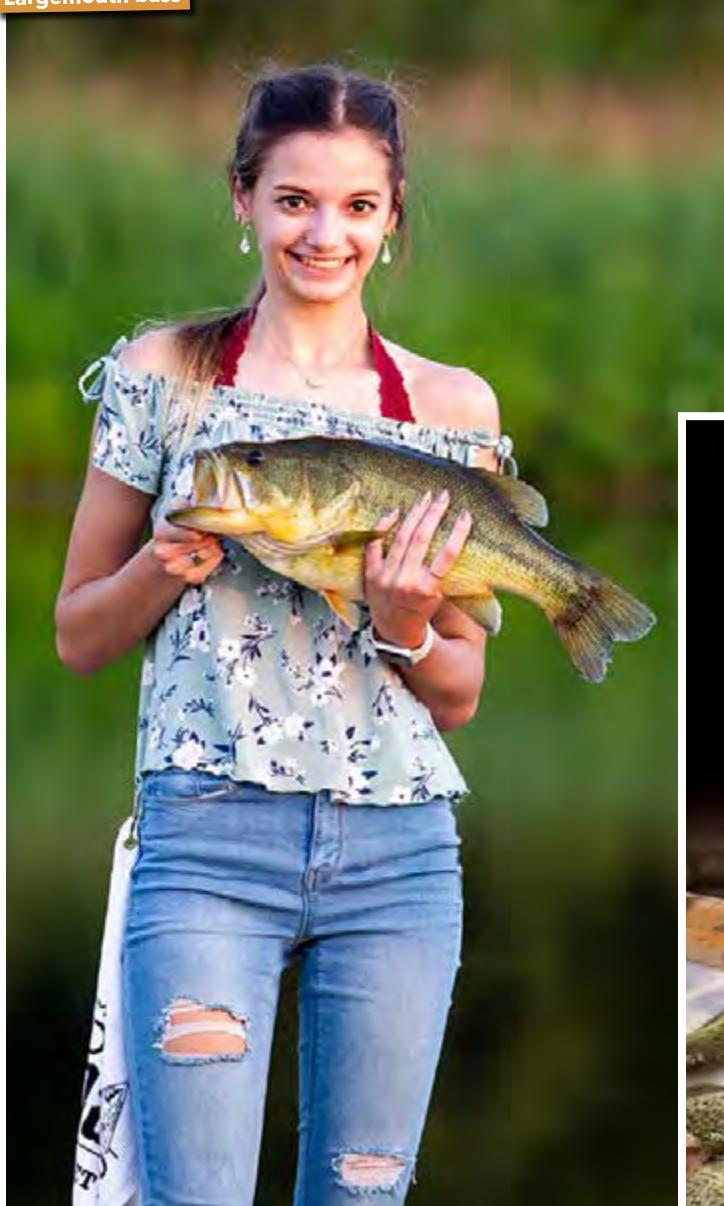
If heaven were a place on earth, it would have to be Missouri in the fall. Not only are the hunting opportunities second-to-none, but the fishing is, pardon the pun, off the hook.

With so many great places to go, techniques to use, and species to target, where do you start?

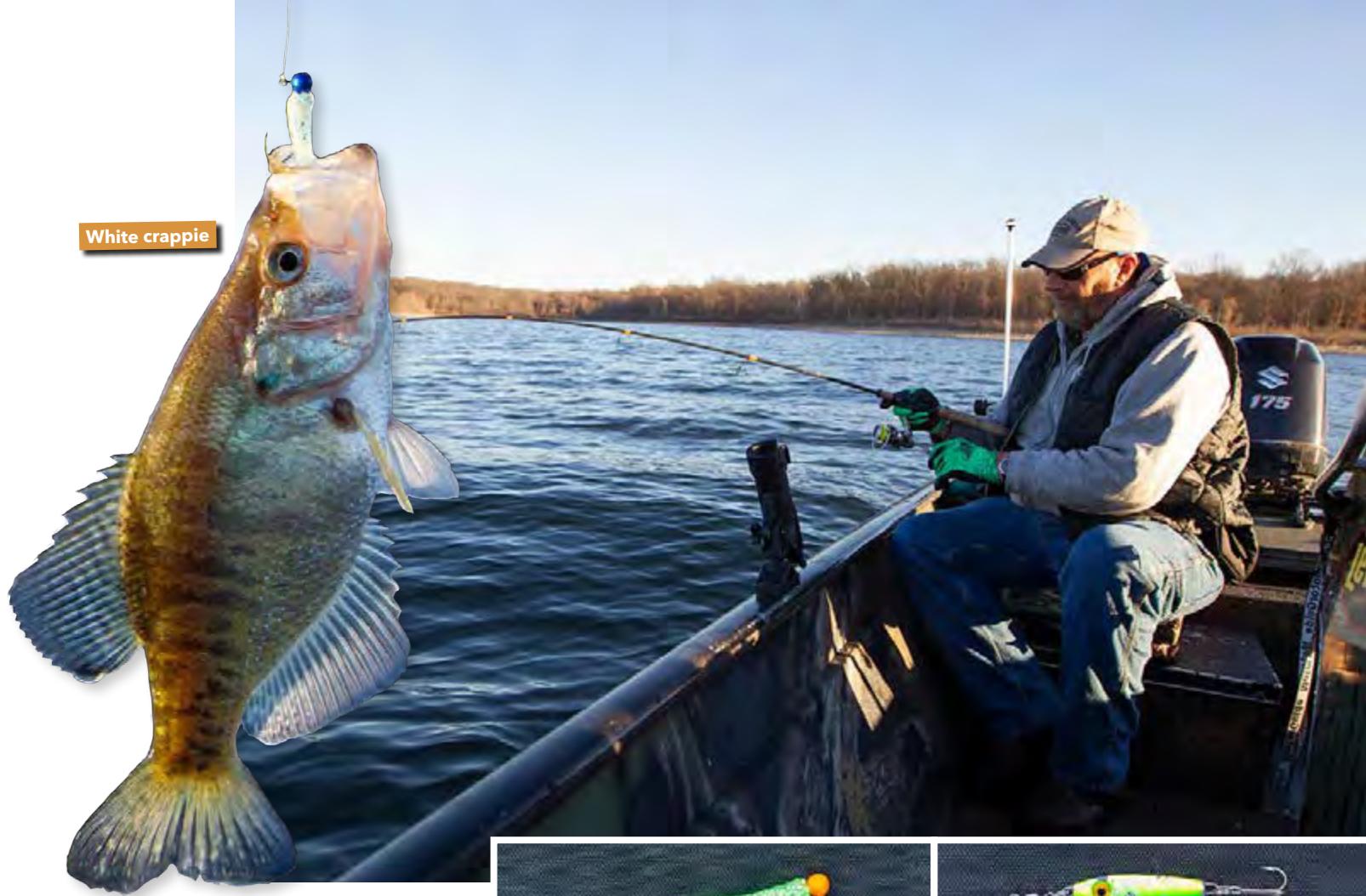
How about right here? Let's narrow in on some of the best fisheries and techniques in the Show-Me State for crappie, largemouth bass, and walleye.



Largemouth bass



White crappie



Slabs for Days

Missouri is home to both black and white crappie. The two species average 9 to 10 inches long and are a schooling fish, so when you catch one, it's always a good idea to try for more. Why do you want to catch more? Because crappie are delicious! In fact, they're one of the best tasting fish that'll ever grace your frying pan, not to mention a lot of fun to catch.

Fall is primetime for catching good numbers of crappie as they gorge themselves in preparation for the winter ahead. Be sure to know ahead of time the length and possession limits for the body of water you're fishing. Once you get into a mess of crappie, the action can be fast and furious.

In general, crappie tend to relate to structure like submerged timber, brush piles, and vegetation near open water. These areas allow them easy access to prey like shad and invertebrates, while affording cover and protection from larger fish. These places also make it more likely you'll get snagged fishing for them, so be sure to bring extra tackle.



Jig



Spoon

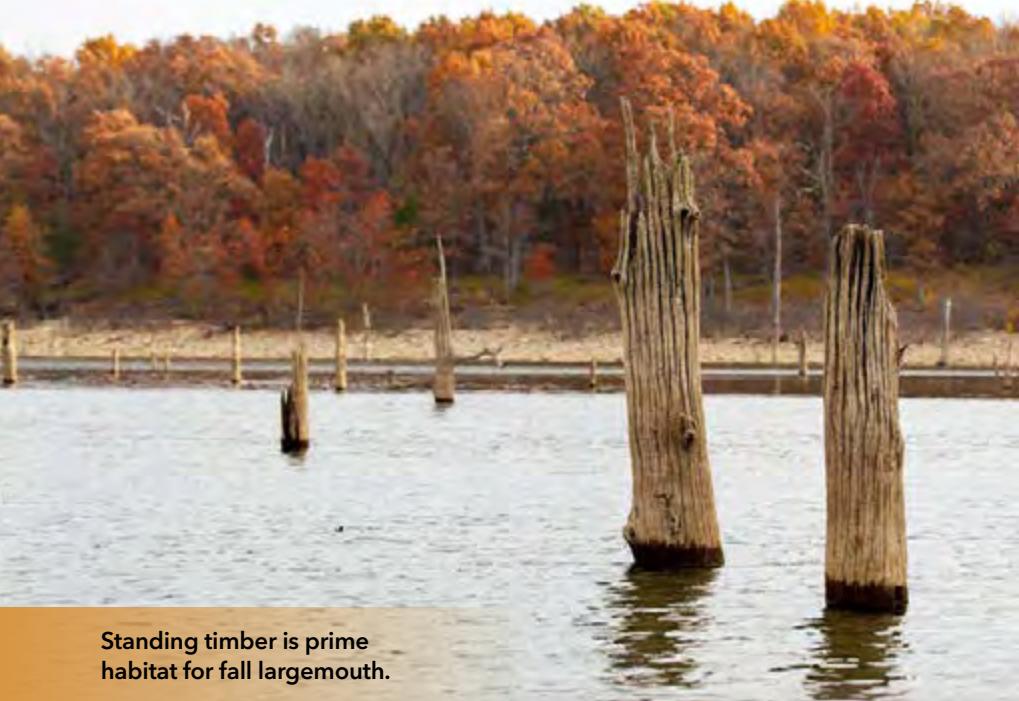
Tiny jigs and small spoons on light line can yield big stringers of Missouri crappie.

Fortunately, some of the best rigs for crappie are also easy, inexpensive, and best presented with a spinning rod and reel combo. Six-to-eight-pound test line is fine for most scenarios. Slip bobber rigs are elegantly simple and absolutely deadly when suspended over brush piles. Experiment with depths in the 5 to 10 foot range and position your boat 15–20 feet away from the pile to avoid spooking fish.

For a more proactive approach around brush piles, keep your distance, but try casting a 1/16–1/8 ounce jig beyond the brush. Let the jig sink down near the brush then try different retrieves to see what triggers a strike. Keep doing that until the school stops hitting.

Once you've worn out the aggressive fish, move on to the top of the brush pile, or if it's standing timber, right up against the trunk. Vertical jig in and around the structure to instigate any remaining fish. Often, this is how you hook up with much larger crappies.

Missouri has incredible fall crappie fishing across the entire state, but three of the top producing reservoirs that should be on your list are Pomme de Terre, Truman, and Stockton.



Tools of the trade for autumn bassin'.
Heavier rods and line will help you sling these baits around thick cover.

Livin' Large

When you think largemouth, you typically think summertime bruisers busting the surface, heads shaking furiously to toss a hook. But don't overlook fall. Just like their crappie cousins, largemouth bass are beating up on shad and other baitfish to fuel their winter survival. Unlike their crappie cousins, the baitfish Missouri largemouth are chasing in the fall are significantly bigger.

Bigger baits mean beefier gear, so expect to sling a baitcaster spooled with 10-to-12-pound test line. Monofilament will usually be fine, but you might benefit from upgrading to fluorocarbon line when the water is crystal clear, and fish tend to be spookier.

Life for an autumn largemouth revolves around sticking close to schools of shad. These schools are often referred to as "balls" due to their density and how they show up on electronic fish finders. As the days shorten and temperatures fall, these masses of baitfish migrate up into creek arms off the main lake, and so should you. In addition to using electronics to locate baitfish, key in on features like flats, standing timber, chunky rock banks, and even manmade structures like docks.

One of your best bets for bending your rod on some fall largemouth is Lake of the Ozarks. With over 1,100 miles of shoreline and feeder creeks, your options are almost limitless. Prospect around

structure with baits like Wiggle Warts, chatterbaits, and Indiana-bladed spinnerbaits. Run shad-colored wakebaits over flats to trigger a strike.

Truman Reservoir is another great Missouri largemouth destination for fall fishing. While not as big as its Lake of the Ozarks neighbor, it's also not as busy in terms of boat traffic and you'll have no problem finding secluded creek arms to explore.

Bass bustin' favorites on this lake include brush jigs with big trailers thrown in and around brush piles and timber. Spinner baits clad with Indiana or Colorado blades can be deadly, along with chatterbaits. On calm days, especially during the twilight bite, bold and brash buzzbaits can create some explosively fun topwater action.

In the southwestern corner of our state, the clear waters of Table Rock are home to some incredible largemouth fishing. The same tactics and baits can be used as at Lake of the Ozarks and Truman, but you should also add the beloved Ned rig to your arsenal.

The Ned rig is a finesse jig perfected for finicky bass and fished over rocky bottoms. Its fiber weedguard helps it slip through snags to ensure you spend more time fishing than unsnagging. Bring different colored bodies to determine what the bass like best, but it's always a safe bet to start with watermelon or pumpkin to mimic the look of a crawdad.



Key in on flats, brush piles, and other deep structure to locate fall walleye fattening up for the winter.

Working for Walleye

If it's toothy tightlines you're after, Missouri fall-time walleye are exactly what you're looking for. Think crappie couldn't be beat for table fare? Deep fried walleye will definitely give them a run for their money. Pro tip: If you're keeping fish to eat, be sure to harvest the cheeks off your walleye. They're like delicious little freshwater scallops.

If your mouth is already watering, or you're just ready to take on some autumn 'eyes, here's how to make it happen.

Much like the crappie and largemouth featured in this article, walleye also are bulking up for the slowdown of winter. And again, like the other species, they're primarily keyed in on concentrations of shad.

Known primarily as a bass lake, Table Rock teems with great numbers of walleye and good sizes, too. But as noted before, the clear waters of this Ozark lake require a more finessed approach if you want to put fish in that live well.

Spool your spinning rod up with 6-to-8-pound fluorocarbon and tie on a drop shot rig tipped with a whole

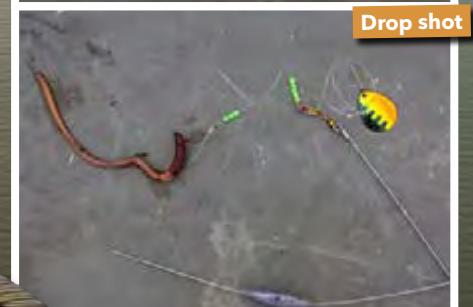
nightcrawler. Then use lake maps and/or electronics to find structure in about 30 feet of water. If you prefer to cover more water in less time, break out the baitcasters and troll crawler harnesses on fluorocarbon line over deep structure and flats. If you can, create GPS waypoints wherever you hookup and use that information to get right back on the fish.

Not to be outdone by Table Rock, Stockton heats up for walleye as the temperatures begin dropping and the days get shorter. Big crankbaits trolled over flats and deep structure are killer for serious 'eyes. The more they resemble shad, the better. Hit the same areas with crawler harnesses to give them a different look.

Jigs, or jigs tipped with minnows, danced around deep brush piles or schools of shad can be a productive way of picking off walleye that are unwilling to venture far from their cover or food. Don't be surprised if you pick off a good crappie or two fishing these areas. Jigs have universal appeal to a variety of fish species.



Crankbait



Drop shot

Walleye

In the northwestern corner of our state, Mozingo Lake is the place for consistent big walleye angling. With a modest 26 miles of shoreline, it's not as overwhelming as Table Rock or Stockton, though similar techniques will still work, like crawler harnesses pulled over flats and deep structure. Be sure to troll those crawler harnesses along windy shorelines and points, too.

Walleye relating to deep brush piles can often be coaxed into a strike by the seductive swing of a Rapala Shad Rap. Vary the speed on your retrieve to match the mood of the fish.

If you didn't already have plans for your fall, you do now. People come from across the country to enjoy the fall fishing opportunities here in Missouri. It's the perfect time and place for your next angling adventure and lucky for you, it's all right here in your own backyard. ▲

Tim Kjellesvik is the editor-in-chief of DeerCast and is on a mission to help more people enjoy the outdoors.

Charlotte's Missouri Cousin



WHILE NOT A LITERARY CELEBRITY,
THE ADAPTABLE SPOTTED ORBWEAVER
CAN BE FOUND NEARLY EVERYWHERE

by Paul Calvert

There are certain children's classics that every kid should read. My list started with the children's picture book *The Biggest Bear* by Lynd Ward. Other favorites included *Black Beauty* by Anna Sewell, *Old Yeller* by Fred Gipson, and *Where the Red Fern Grows* by Wilson Rawls.

Now we have come to the number one classic on my list — *Charlotte's Web* by E.B. White. Who doesn't love the story of a spider that saved a pig's life? When you say it that way, it doesn't sound like much of a classic does it? But it is a great story, especially for spider lovers. I could spend this entire article on the background of how this classic was written, but I wouldn't get to talk about Charlotte's cousin, Missouri's spotted orbweaver, *Neoscona crucifera*.



A spotted
orbweaver
(*Neoscona crucifera*)

PHOTOGRAPH BY
NOPPADOL PAOTHONG

Charlotte is Born

One October, E.B. White was watching a barn spider on his farm spin a web and he became fascinated with it. As he watched it for several days, she spun an egg sack and deposited her eggs into it and later died. When he returned home from his farm, he took the egg sack with him. He was so fascinated by the spider and later the little ones spreading webs throughout his house he asked William Gertsch of the Museum of Natural History to identify the spider. Gertsch identified the barn orbweaver as *Araneus cavaticus*.

When Charlotte and Wilbur meet in his tale *Charlotte's Web*, she gives her name as Charlotte A. Cavatica. Do you see what the author did with her name? Her scientific name is *Araneus cavaticus*.

Charlotte was born.

Charlotte's Missouri Cousin

Charlotte was created based on an orbweaver from the family *Araneidae*. This family is very large, with over 3,000 species worldwide and about 160 species in the United States. Missouri is blessed with about 50 orbweavers. Many orbweavers are large and colorful, and Missouri's species are no exception. Examples include two garden spiders, the yellow and banded, the marbled orbweaver, and our spotted orbweaver.



Once the female mates, she lays up to 1,000 eggs.



Although Missouri doesn't have *A. cavaticus*, we have another orbweaver that takes its place — the arboreal orbweaver, also known as the spotted orbweaver or our barn spider. *Neoscona crucifera* takes the stage in late summer and early fall.

Unlike our large garden spiders, it's a spider with many different colors. It varies from gray to burnt orange with little or no patterns on its abdomen. Like almost all spiders, especially orbweavers, the females get all the attention. Their bodies are typically much larger ($\frac{3}{8}$ to $\frac{1}{2}$ inch) and stay in the webs for their entire adult life unless displaced by predators or humans. Males are smaller ($\frac{1}{4}$ to $\frac{3}{8}$ inch) and mature much earlier in the year, leaving their web upon becoming sexually mature and seeking out females for mating. Sometimes they can be found waiting patiently next to a female web prepared to mate upon the readiness of the female. An impatient male may just add to the nutritional value of the female if he jumps the gun.

Once the female mates, she lays up to 1,000 eggs and spins a yellow silken sack around the eggs. The size and number of eggs is dependent on the mother's reproductive health at the



Missouri is blessed with about 50 orbweavers. Many orbweavers are large and colorful, and Missouri's species are no exception.



time of egg laying and this egg sack could be $\frac{1}{4}$ to $\frac{1}{2}$ inch in size. She then conceals that sack in a curled leaf, under the eaves of a porch or wherever she can find a hiding place. She finishes out her life watching over the egg sack, dying around the first frost. The eggs will remain in the sack until spring when they work their way out and, like Charlotte's little ones, balloon away to start their life journey.

Life of Missouri's "Charlotte"

Missouri's spotted orbweavers' preferred habitat is moist deciduous forests and woodlands, but they have adapted well around farms, urban areas, homes, and outbuildings. These adopted socialization patterns serve the spider well.

In their natural habitat, these fall maturing spiders must build their webs in areas where they can maximize their capture rate to maintain reproductive health and vigor. This maximization must be weighed against exposure to their top predators, birds and mud daubers. Young spiders tend to build their webs in the evening hours, hunt through the night, and



After a night of activity, the huntress prepares her catch.



tear down their webs in the early morning hours before predators are active. They then hide in a leaf of a tree, up against the bark or anywhere a crack is available. Adult females will do the same as long as food is readily available during the nighttime hours.

As the summer draws to an end and winter approaches, available food starts to diminish and females may need to hunt around the clock, exposing her to more predators. Life is dangerous in the natural world.

Like many other animals, these spiders have adapted well to encroachment on their habitat. We seem to have more encounters with them as they are attracted to our houses, outbuildings, and barns. They are drawn to things that increase insect numbers, including gardening, barn lots, and street or porch lights. While there is an increase in food availability, there is also an improved level of security for these spiders. Our structures add a new level of obstacles for predators to overcome, increasing their overall survivability. Add to this the increased number of insects and their improved reproductive health, their overall population numbers increase, adding opportunities and hours to the watching enjoyment.

The Un-Charlotte

During the cool fall evenings as you are sitting on the porch, take time to watch the spider in the corner build her beautiful orb web and prepare for her night. She won't speak to you or leave you a message that says *SOME PIG* like Charlotte did in the book, but her silent gracefulness is relaxing.

Then, when she has completed her web and you retreat to your bed, leave the light on for your new friend on the porch. She will appreciate it as she hunts for food.

E.B. White was asked about the spider in the barn that he so aptly named Charlotte, and this is what he said, "As for Charlotte herself, I had never paid much attention to spiders until a few years ago. Once you begin watching spiders, you haven't time for much else — the world is really loaded with them." ▲

Paul Calvert worked at the Missouri Department of Conservation for 26 years. He has always enjoyed studying the life history of insects and spiders and sharing the natural world with those around him.



After completing her perfect web,
she waits patiently for dinner.

"Once you begin watching spiders, you haven't time for much else." — E.B. White



PAWPAWS

Missouri's State Fruit

NOT ALWAYS EASY TO FIND, BUT WELL WORTH THE SEARCH

by Jan Wiese-Fales



A fourth-grade civics lesson at St. Louis-based New City School in 2019 resulted in the pawpaw (*Asimina triloba*) earning designation as Missouri's official fruit tree.

Missourians who might easily recognize bluebirds, dogwoods, black walnuts, and honeybees — the official state bird, tree, nut, and insect — may not be able to pick the pawpaw tree out of an arboreal line-up, let alone recognize its fruit. But pawpaw trees are plentiful in their natural habitat of rich bottomland soils along streams, on moist slopes, in ravines, and at the base of wooded bluffs, environments that occur in great swaths of Missouri's landscape.

Pawpaws are the only descendent of the mostly tropical Annonaceae, or custard apple, family that have evolved to thrive in temperate North America. The tree's 6- to 12-inch long, 3- to 5-inch wide, dangling, lance-shaped leaves are among the last to emerge in the spring forest, an adaptation that has almost certainly contributed to its successful integration into USDA hardiness zones 5 to 9. In autumn, the tree's exotic leaves are golden yellow in the forest landscape.

"Pawpaw trees are easy to identify. They look like a tropical plant," said MDC Community Forester Ann Koenig. "Smelling a crushed leaf is a dead giveaway. It smells more like green pepper than green peppers do."

"I absolutely love the flowers in the spring. There's nothing else that looks like them in bloom."

Pawpaw blooms emerge before leaves make an appearance in late April and early May. At first small and green, blooms mature into bell-shaped flowers with six recurved petals in a rich burgundy color. These sturdy blossoms emit a fetid odor that attracts the carrion beetles and flies that pollinate them. Not the most efficient of pollinators, a novel and interesting solution used by commercial growers to increase fruit set is to hang a dead animal carcass — or roadkill — from the tree's branches to lure them in greater numbers.

Koenig suggested that spring bloom surveillance forays into the woods could make fall pawpaw foraging trips more successful.

Pollinated blooms produce pale green fruits that grow singly or in small clusters. Shaped somewhat like a kidney bean, they mature to the size of potatoes, making them the largest native American fruit species.

Ripening in September and October, fruits may or may not change color. Some variants turn a lighter green and even display a yellowing. Fully ripe fruits soften and give off a distinctive fruity aroma, eventually falling from the tree. A gentle squeeze that leaves a slight indent indicates ripeness but use caution. Fruits bruise easily. And unless very close to maturity, pawpaws will not further ripen once picked. Ripe fruits often exhibit some browning and there are those who are most fond of them the darker they get.

Within its smooth green skin, pawpaw's creamy white to pale yellow or orange flesh surrounds several large brown seeds. Flavor varies among varieties, and some native pawpaws should be tossed instead of tasted. But when they are good, they are very good with a complex flavor most often likened to some



Pawpaws' signature large lance-shaped leaves belie their origins as members of the mostly tropical Annonaceae family. Unusual burgundy colored blooms appear early in the spring before leaves emerge, allowing foragers to identify pawpaw patches for early fall gathering.

combination of banana, mango, and pineapple. With only a two-day shelf-life, fruits will keep for up two or three weeks if refrigerated. Pulp can be frozen for later use.

Pawpaw foragers must be vigilant to beat opossums, raccoons, foxes, squirrels, and black bears to the fat fruits that certainly must be a favored delicacy in woodland diets. Pawpaw's most welcome "pest" is the zebra swallowtail butterfly that lays its eggs on the undersides of the tree's young leaves. Pawpaws are the exclusive larval host for the striking black-and-white butterflies.

Reaching mature heights of 15 feet, and occasionally growing up to 30 feet, pawpaws tend to grow in colonies, spreading by underground roots. Because they are not self-fertile, pollen from a tree from outside the colony is necessary to produce fruit, which further explains why entire groves of trees are sometimes devoid of pawpaws.

"I've seen thousands of pawpaw trees but only a few fruits," Koenig said.



Strachey wrote about “assemin,” from the Powhatan word assimin, in reference to pawpaws, which he called wheat plums.

Englishman John Lawson referred to the fruit as a papau in A New Voyage to Carolina in 1709. Many names were attributed to the widespread fruit, often misidentified as a type of papaya. Linnaeus assigned pawpaws with their current recognized classification in 1753.

Over the years any number of colorful regional names have been coined to identify pawpaws including Missouri banana, Hoosier banana, hillbilly mango, and banago, among many others.

Historical records indicate that Daniel Boone enjoyed pawpaws, both George Washington and Thomas Jefferson ate, grew, and shared them, and in 1806, William Clark journaled about their critical role in the Lewis and Clark expedition: “Our party out of provisions. Subsisting on poppaws.”

Pawpaw fruits also were welcome and nutritional repast in the meager diets of Civil War soldiers and enslaved persons.

Ancient History, Names, and Brushes with Fame

In *Pawpaw: In Search of America's Forgotten Fruit*, author Andrew Moore writes that fossil records indicate pawpaw's ancestors were growing in North America in the Eocene, 56 million years ago. The plants' irresistible sweet, fleshy fruits resulted in prehistoric megafauna enthusiastically dining on them and efficiently dispersing the seeds. A couple of ice sheets and hundreds of thousands of years later, *Asimina triloba* remained the only member of a 2,000 species family to have adapted to frozen winters. Pawpaws are indigenous to 26 states in the eastern and midwestern United States.

The earliest known Native American archeological sites show that humans seasonally dined on pawpaws in large quantities. Their fondness for the fruits was responsible for the trees' broader dispersal as they moved and migrated “carrying seeds in satchels rather than their stomachs,” observed Moore.

He noted that a modern map with large numbers of pawpaw place names is a testament to the tree's popularity and spread.

Early American settlers most certainly encountered and enjoyed pawpaws, but the first solid written evidence of the edible fruits appeared in 1612 when Jamestown colonist William

Dubious Claim to Fame

Just as you've more than likely heard the old pawpaw patch song, a mention of the "Hatfields and McCoys" may bring an epic American feud to mind. An 1882 election day argument in Kentucky resulted in some innocently by-standing pawpaw trees playing a role in a deadly incident of this renowned feud.

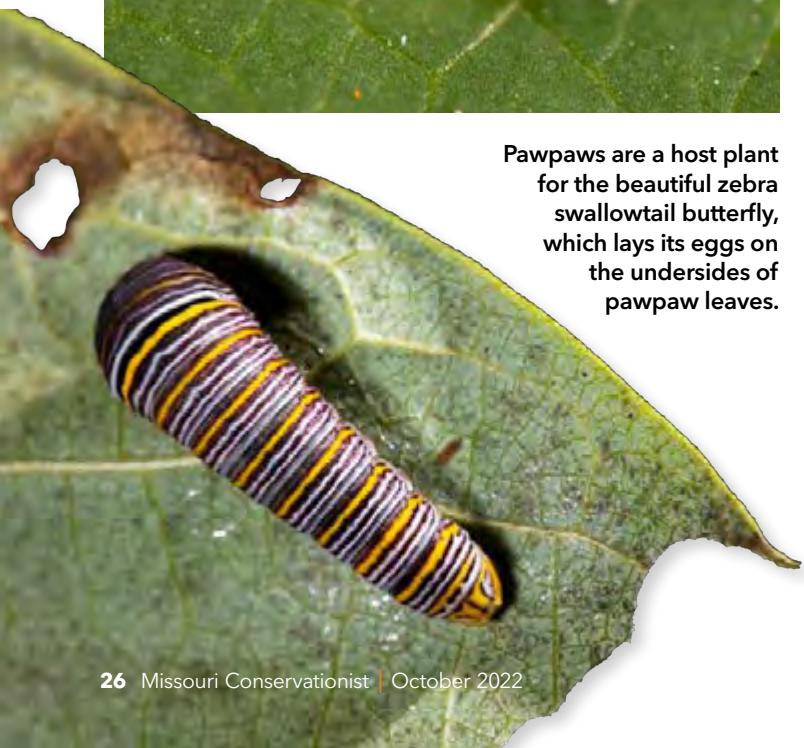
A historical marker near Buskirk, Kentucky, recalls the fatal "Pawpaw Tree Incident." It reads: "This episode is result of August 1882 election-day fight. Tolbert, a son of Randolph McCoy, exchanged heated words with Ellison Hatfield, which started a fight. Tolbert, Pharmer and Randolph McCoy Jr. stabbed Ellison to death. Later the three brothers were captured by Hatfield clan, tied to pawpaw trees, and shot in retaliation."



Pawpaws are America's largest native fruit. Shaped roughly like kidney beans, they are closer to the size of potatoes. They can be light green to yellow when ripe and often have brown markings.



Pawpaws are a host plant for the beautiful zebra swallowtail butterfly, which lays its eggs on the undersides of pawpaw leaves.



Healthy and Versatile

Low in fat and calories, a 3.5 ounce serving of pawpaw provides 22 percent of the daily value (DV) of vitamin C, 38 percent DV of iron, 27 percent DV of magnesium, and decent amounts of many other essential minerals. If given a choice between a pawpaw, a banana, a peach, or a bunch of grapes, pick the pawpaw for the most overall nutrients.

Many people believe when it comes to pawpaws, fresh is best, but pawpaw flesh is culinarily versatile. Because of its custardy texture and sweetness, it most often is used in custard-based recipes such as ice cream, pudding, and cream and chiffon pies. It also can be used to delicious effect in breads, cookies, muffins, and pancakes. Pawpaws have recently been used as a seasonal flavoring for beer and wine.

Extracting pulp from the seedy fruits can seem challenging. It's best to cut the fruits in half, remove the seeds and scoop the flesh out. Or press it through a food mill or a screen to separate the skin from the pulp.

Moore noted Native Americans often dried the fruit for later use in soups and stews, corn cakes, and other breads. Present day cautionary tales warn of adverse reactions to consumption of dried pawpaws, or fruit leather. There is no scientific consensus for why this occurs. Moore speculated Native American preparation techniques may have neutralized compounds responsible for illness.

Pawpaws prompt an allergic reaction in some people. This reaction is fairly rapid, so nibble before you gobble to make sure you are not included in this unfortunate group.

In addition to eating and cooking with pawpaws, Native Americans twisted the fibrous inner bark from the pawpaw's trunk to make ropes, fishing nets, baskets, mats, and cloth. Powder from ground seeds was used to control head lice, effective because the tree produces compounds that deter insects and bacterial pests. They also serve to make zebra swallowtail larvae unpalatable to birds and other predators.

Current research supports pawpaw's natural insecticidal properties and investigation continues for its potential use as such.

Pawpaws for the Cure

According to the National Library of Medicine, promising new anti-tumor agents known as Annonaceous acetogenins have been discovered in pawpaws and other plants in Annonaceae family. These compounds have been shown to inhibit cell processes associated with various cancers. Published studies have shown the acetogenins effectiveness as mechanisms against cancer in leukemia, pancreatic, and breast cancer models in laboratory trials with mice and rats. More research will be needed before it will become a viable treatment.



Pawpaws are ripe when they yield to a gentle squeeze and emit a fruity scent. But use care. Fruits are fragile. And don't rush it as they do not ripen further once picked.

Landscape Worthy

Pawpaw trees can be an appealing choice for home landscapes. Because they are not self-fertile, planting two or three trees of different varieties will increase the chances of fruit production.

"A lot of people plant magnolias but they could just as easily plant pawpaws for a similar aesthetic," said Hannah Hemmelgarn, assistant program director at MU's Center for Agroforestry, home to pawpaw cultivar trials and demonstration orchards. "More and more people are growing them."

"Pawpaws in the wild might be tall and scraggly and not producing much fruit. Trees have a more stout form if planted in the sun and tend to produce more and larger fruits."

Trees that grow more than a couple of years in the shade, tend to sucker into a "pawpaw patch," just as it did "way down yonder" in the well-known folk song.

Pawpaws can be grown from seed, but it can take up to eight years for a tree planted from seed to produce fruit, and there is no guarantee the resulting pawpaw sapling and its fruits will come back true to the parent stock.

Native variety pawpaw seedlings are available from George O. White State Forest Nursery and may be ordered directly from MDC's website from September through mid-April. Additionally, grafted plants and several excellent cultivars developed as part of university research programs are available commercially.

Hemmelgarn urges homeowners planting pawpaws to plant more than one cultivar or native variety.

"Cultivars of pawpaw are also known as nativars," she said. "These selections yield more abundant and reliably flavorful, and larger fruits, though a native pawpaw is always going to be a winner for diversification and wildlife purposes."

Check Before You Collect

If you'd prefer to forage for pawpaws, first educate yourself about possible local harvest regulations that may prohibit picking fruit. MDC regulations allow the collection of nuts, berries, and fruits — such as pawpaws — edible wild greens, and mushrooms for personal consumption from most MDC areas, except nature centers, conservation headquarters, Rockwood Reservation, and natural areas.

And as with any foraging, it's best to gather only what you plan to use. ▲

Jan Wiese-Fales is a freelance writer who gardens in Howard County and enjoys camping, hiking, floating, and photographing Missouri's spectacular wild outdoors.



Show Off Your Pawpaw!

The Missouri Department of Natural Resource's Bennett Spring State park held its Fourth Annual Picking Up Pawpaws Contest Sept. 14-24. Participants presented their entries to staff at the park's nature center for weigh-in during the designated 10-day contest window. Participants were photographed displaying their entries at weigh-in.

Out of 100 adult entries and 50 youth entries submitted in 2021, Dale Rodden's 10.2 oz. Dallas County-collected pawpaw took top honors. David Garmon and his Texas County-collected 9.8 oz. pawpaw placed second. As the 2021 contest winner, Rodden received wild edible field guides, a 2022 *Farmer's Almanac*, and a custom drawn bookmark of pawpaws from the state park's volunteer artist, Deanna Stuckey. And a year's worth of bragging rights.

Get Outside in OCTOBER



Ways to connect
with nature



Welcome to the Show

October is showtime in the Show-Me State. Fall color peaks around mid-October for most of the state. It's a great time to get outside and experience the beauty. Here are a few trees that play leading roles in the show:

- **Sugar maples** often display red, orange, yellow, and green leaves, all on the same tree.
- **Flowering dogwoods**, Missouri's official state tree, dazzle in reds and purples.
- **Sweet gums** flaunt a rainbow of colors, all on one tree.
- **White oaks** show vibrant wine-red hues.

For more information on Missouri's fabulous fall foliage, visit short.mdc.mo.gov/ZVf.



Sugar maple



Flowering dogwood



Sweet gum



White oak

Woolly Bear

In the autumn, woolly bears are commonly seen crossing roads as they search for sheltered places to overwinter. These are juveniles of the Isabella tiger moth. Folklore has long maintained that the varying widths of the caterpillar's black and rusty-red bands are useful for predicting the harshness of the coming winter. Generally, the folklore goes like this — the wider the rusty-red band, the milder the winter; if it is narrow, the winter will be severe.

CENTRAL REGION

Going Batty

Saturday • Oct. 22 • 10 a.m.-2 p.m.

Runge Conservation Nature Center
330 Commerce Drive, Jefferson City, MO 65109

No registration required; for more information, call 573-526-5544 or visit short.mdc.mo.gov/4T8.

All ages.

Join us in the lobby of Runge Conservation Nature Center to learn all about the bats of Missouri. Staff and volunteers will have ongoing activities and crafts available for all ages.

Natural Events to See This Month

Here's what's going on in the natural world.



Muskies
are active.



Beavers
prepare
lodges for
winter.



Cardinal
flowers
bloom.

VIRTUAL

Naturalist Notes Virtual Series: Bird Migration

Friday • Oct. 14 • 10 a.m.-11 p.m.

Online

Registration required by Oct. 14 at short.mdc.mo.gov/4TX
or call 888-283-0364

All ages

Many people look forward to spring when migratory birds arrive and signify to us that winter is over. However, fall is another great time to notice migration as summer birds leave and winter birds start showing up. Learn more about migration, and places to see migratory birds in this program with Naturalist Jordi Raos. Please provide a valid email as a link will be sent to you for this virtual program.

Welcome Home

The winter resident birds are arriving as fall migrants are passing through this month. This is a great time to go birding.

Here's a few to look for:

- **Dark-eyed juncos** arrive from Canada. Their energetic presence will cheer us in the frigid months to come.
- **American wigeon, northern pintail, and gadwall** are arriving in peak numbers.
- **Green-winged teal** migration is at its peak.



DISCOVER
NATURE
ANYWHERE

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Places to Go

NORTHEAST REGION

Indian Hills Conservation Area

A river runs through it

by Larry Archer

✖ Finding similarities between the Montana of director Robert Redford's 1992 epic fly-fishing movie and the nearly 4,000-acre Indian Hills Conservation Area (CA) of northeast Missouri's Scotland County takes effort, but there's one undeniable similarity — a river runs through it.

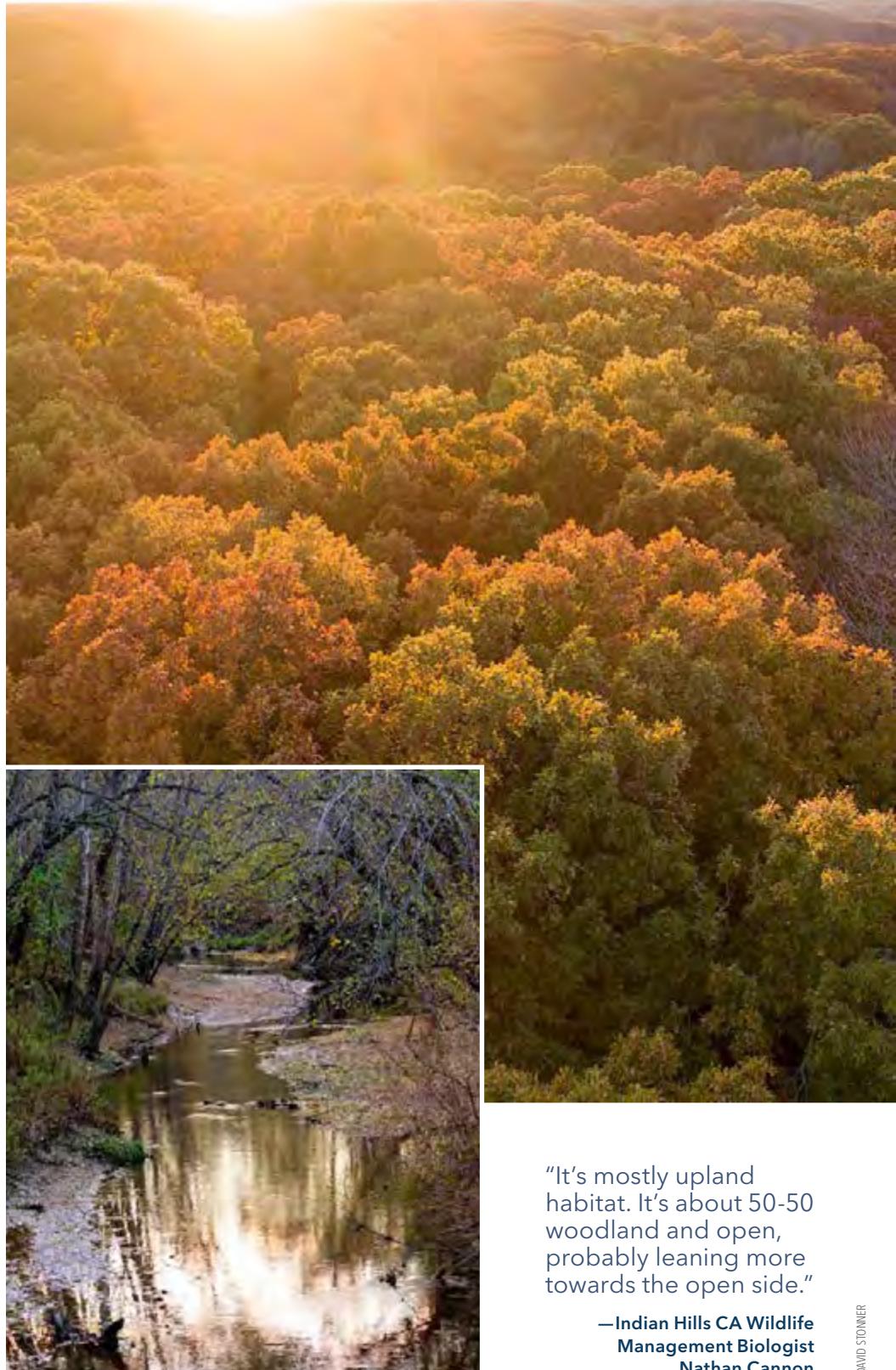
"We're in the Fabius River District, and there are several branches of the Fabius that all have their own name," said Indian Hills CA Wildlife Management Biologist Nathan Cannon. "And so, the Fabius River cuts through the middle of Indian Hills."

Bisected from west to east by the South Fork of the Middle Fabius River, Indian Hills CA's open upland habitat of the river bottoms cutting through its core is sandwiched by rolling, forested hills to the north and south.

Combined, these habitats attract archery deer hunters in October. Access to the river and several ponds also give anglers an opportunity, and mowed service roads throughout the area make it accessible on foot or on the right kind of bike (think big and puncture-resistant tires).

The ponds also attract migrating waterfowl, said Cannon.

"We do have a wetland area, so you're going to see some ducks as well," he said. "Wood ducks, mallards, and other species of ducks that are migrating in October."



"It's mostly upland habitat. It's about 50-50 woodland and open, probably leaning more towards the open side."

—Indian Hills CA Wildlife Management Biologist
Nathan Cannon

DAVID STONER



INDIAN HILLS CONSERVATION AREA

consists of 3,975 acres in Scotland County.
From Memphis, take Highway 15 south
8 miles, then Route T west 3.5 miles,
and south 1 mile at the area sign.

40.3394, -92.2767

short.mdc.mo.gov/4qZ 573-248-2530

WHAT TO DO WHEN YOU VISIT

-  **Biking** 12.3 miles of mowed service roads.
-  **Birdwatching** The eBird list of birds recorded at Indian Hills CA is available at short.mdc.mo.gov/4qk.
-  **Camping** Nine designated camping sites near parking lots. Open camping is allowed except during the firearm deer and spring turkey seasons.
-  **Fishing** River access and fishable ponds. Catfish, sunfish.
-  **Hiking** 12.3 miles of mowed service roads.
-  **Hunting Deer and turkey**
Regulations are subject to annual changes. Refer to MDC's regulation page online at short.mdc.mo.gov/Zjw for regulations.
Also **dove, quail, rabbit, and squirrel**
-  **Waterfowl Hunting** Open hunting. See the *Migratory Bird and Waterfowl Hunting Digest 2022-2023* for updated regulations. Available online at short.mdc.mo.gov/4SZ.

WHAT TO LOOK FOR WHEN YOU VISIT



Red fox



Ring-necked pheasant



Northern bobwhite



Coyote

Wild Guide



Longjawed Orbweaver

Tetragnatha spp.

Status
Common

Size

Length: no more than ½ inch (not including the legs)

Distribution
Statewide

Longjawed orbweavers are often called "stretch spiders" because they often rest with their two front pairs of legs stretched straight out in front of them, and the last pair outstretched behind. Combined with their slender bodies and variably marked coloration, they can hide easily while clinging to a blade of grass or other plant with their rather short third pair of legs. Even when resting in their webs, they often look like an ordinary small twig. As the name implies, the chelicerae ("jaws" or "fangs") of this group are extra long, compared to those of other orbweavers. The chelicerae of males are especially long and the enlarged tips of his palps (fingerlike structures near the mouth) look a little like tiny boxing gloves.



Did You Know?

Some of the most "buggy" places in Missouri are in lowlands near water. This is where hosts of flying insects, many obnoxious to people, congregate. Longjawed orbweavers, building their webs right over the water, help to keep the numbers of these insects in check.



FOODS

The horizontal webs are positioned within a few feet of a water's surface, which makes them perfect for catching aquatic winged insects — mayflies, midges, stoneflies. Other prey includes lacewings, adult antlions, and many other small flying insects.



ECOSYSTEM CONNECTIONS

The cryptic coloration, body shape, and resting posture of these spiders reminds us that there are plenty of animals that would eat them if they could see them. It also reminds us that their prey would avoid them if they could.

Outdoor Calendar

MISSOURI DEPARTMENT OF CONSERVATION

FISHING

Black Bass

Impounded waters and non-Ozark streams:
Open all year

Most streams south of the Missouri River:

- ▶ Catch-and-Keep:
May 28, 2022–Feb. 28, 2023

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2022

Nongame Fish Gigging

Streams and Impounded Waters,
sunrise to midnight:
Sept. 15, 2022–Feb. 15, 2023

Paddlefish

On the Mississippi River:
March 15–May 15, 2022
Sept. 15–Dec. 15, 2022

Trout Parks

State trout parks are open seven days a week
March 1 through Oct. 31.

Catch-and-Keep:
March 1–Oct. 31, 2022

Catch-and-Release:
Nov. 11, 2022–Feb. 13, 2023

TRAPPING

Beaver, Nutria

Nov. 15, 2022–March 31, 2023

Other Furbearers

Nov. 15, 2022–Jan. 31, 2023

Otters, Muskrats

Nov. 15, 2022–Feb. 20, 2023

Rabbits

Nov. 15, 2022–Jan. 31, 2023

HUNTING

Black Bear*

Oct. 17–26, 2022

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2022

Coyote

Restrictions apply during April, spring turkey season, and firearms deer season.

Open all year

Crow

Nov. 1, 2022–March 3, 2023

Deer

Archery:

Sept. 15–Nov. 11, 2022
Nov. 23, 2022–Jan. 15, 2023

Firearms:

- ▶ Early Youth Portion (ages 6–15):
Oct. 29–30, 2022
- ▶ November Portion:
Nov. 12–22, 2022
- ▶ Late Youth Portion (ages 6–15):
Nov. 25–27, 2022
- ▶ Antlerless Portion (open areas only):
Dec. 3–11, 2022
- ▶ Alternative Methods Portion:
Dec. 24, 2022–Jan. 3, 2023

Dove

Sept. 1–Nov. 29, 2022

Elk*

Archery:

Oct. 15–23, 2022

Firearms:

Dec. 10–18, 2022

Groundhog (Woodchuck)

May 9–Dec. 15, 2022

Other Furbearers

Nov. 15, 2022–Jan. 31, 2023

Pheasant

Youth (ages 6–15):

Oct. 29–30, 2022

Regular:

Nov. 1, 2022–Jan. 15, 2023

Quail

Youth (ages 6–15):

Oct. 29–30, 2022

Regular:

Nov. 1, 2022–Jan. 15, 2023

Rabbit

Oct. 1, 2022–Feb. 15, 2023

Sora, Virginia Rails

Sept. 1–Nov. 9, 2022

Squirrel

May 28, 2022–Feb. 15, 2023

Turkey

Archery:

Sept. 15–Nov. 11, 2022

Nov. 23, 2022–Jan. 15, 2023

Firearms:

- ▶ Fall: Oct. 1–31, 2022

Waterfowl

See the Migratory Bird and Waterfowl Hunting Digest or visit short.mdc.mo.gov/ZZx for more information.

Wilson's (Common) Snipe

Sept. 1–Dec. 16, 2022

Woodcock

Oct. 15–Nov. 28, 2022



*Only hunters selected through a random drawing may participate in these hunting seasons.

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at short.mdc.mo.gov/Zib. Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at short.mdc.mo.gov/Zzf.



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on Instagram**

@moconservation

You will find prairie lizards in forests and along wood lines, exploring and basking on tree stumps, downed trees, and rock and brush piles through October. Follow their lead and discover Missouri's forests in October. There you will find a spectacle of color.

by Noppadol Paothong

Free to Missouri households

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